the analytical HPLC column and retention time on the preparative scale HPLC column along with the determined retention time of the compound on the analytical HPLC column;

(e) selecting a window of time around the predicted retention time within which the compound is expected to elute;

(f) subjecting all or a portion of the remaining mixture to a preparative scale HPLC system comprising the preparative scale HPLC column, an HPLC compatible detector, and a fraction collector; and

(g) collecting at least a portion of the compound of interest using the fraction collector, the fraction collector being activated upon detection of a peak by the HPLC compatible detector within the selected window of time.

5. (Amended) A method of separating a compound of interest from a mixture, the method comprising the steps of:

(a) providing a mixture containing a compound of interest, the compound of interest having an expected mass;

(b) subjecting a portion of the mixture to a separation using an analytical HPLC column to produce an eluate stream;

(c) analyzing the eluate stream using a mass spectrometer to determine a retention time of the compound of interest on the analytical HPLC column;

(d) predicting a retention time of the compound of interest from a preparative scale HPLC column using a predetermined static correlation function between retention time on the analytical HPLC column and retention time on the preparative scale HPLC column along with the determined retention time of the compound on the analytical HPLC column;

(e) selecting a window of time around the predicted retention time within which the compound is expected to elute;

(f) subjecting all or a portion of the remaining mixture to a preparative scale HPLC system comprising the preparative scale HPLC column; and

(g) collecting at least a portion of the compound of interest using the selected window of time.

16. (Amended) The method of claim 5 wherein the collection step (g) is performed without the use of an HPLC compatible detector.

17. (Amended) A method of separating compounds of interest present in a plurality of reaction product mixtures, the method comprising the steps of:

(a) providing a plurality of reaction product mixtures, each mixture expected to contain a compound of interest having an expected mass;

(b) separately subjecting a portion of each reaction product mixture to a separation using an analytical HPLC column to produce a plurality of eluate streams;

(c) analyzing each eluate stream using a mass spectrometer to verify that the eluate stream contains a compound with an expected mass and to determine a retention time of each compound with an expected mass on the analytical HPLC column;

(d) predicting a retention time of each compound with an expected mass on a preparative scale HPLC column using a predetermined static correlation function between retention time on the analytical HPLC column and retention time on the preparative scale HPLC column along with the determined retention time of each compound on the analytical HPLC column;

(e) selecting a window of time around each predicted retention time within which each compound with an expected mass is expected to elute;

(f) separately subjecting all or a portion of each remaining mixture verified to contain a compound with the expected mass to a preparative scale HPLC system comprising the preparative scale HPLC column and a fraction collector; and

(g) separately collecting at least a portion of each compound verified to be present with the fraction collector using the selected window of time for each compound.

29. (Amended) The method of claim 23 wherein the fraction collector is activated upon detection of a peak by the HPLC compatible detector within the selected window of time.

35. (Amended) A method of separating a compound of interest from a mixture, the method comprising the steps of:

(a) providing a mixture containing a compound of interest;

(b) subjecting a portion of the mixture to a separation using either (1) thin layer chromatography to produce one or more spots or zones or (2) an analytical HPLC column to produce an eluate stream;

(c) determining either (1) an Rf value for the compound of interest by analyzing the one or more spots or zones or (2) a retention time of the compound of interest on the analytical HPLC column by analyzing the eluate stream;

(d) predicting a retention time of the compound of interest from a preparative scale HPLC column using either:

(1) a predetermined static correlation function between Rf value from the thin layer chromatography and retention time on the preparative scale HPLC column along with the determined Rf value of the compound of interest, or

(2) a predetermined static correlation function between retention time on the analytical HPLC column and retention time on the preparative scale HPLC column along with the determined retention time of the compound of interest on the analytical HPLC column;

(e) selecting a window of time around the predicted retention time within which the compound of interest is expected to elute;

(f) subjecting all or a portion of the remaining mixture to a preparative scale HPLC system comprising the preparative scale HPLC column; and

(g) collecting at least a portion of the compound of interest using the selected window of time.

39. (New) The method of claim 1 wherein the static correlation function is predetermined by determining the retention time of each of two or more test compounds on the analytical HPLC column and the preparative HPLC column and correlating the retention times on the analytical HPLC column to the retention times on the preparative scale HPLC column.

40. (New) The method of claim 5 wherein the static correlation function is predetermined by determining the retention time of each of two or test more compounds on the analytical HPLC column and the preparative HPLC column and correlating the retention times on the analytical HPLC column to the retention times on the preparative scale HPLC column.

41. (New) The method of claim 17 wherein the static correlation function is predetermined by determining the retention time of each of two or test more compounds on the analytical HPLC column and the preparative HPLC column and correlating the retention times on the analytical HPLC column to the retention times on the preparative scale HPLC column.